

Cycas candida (Cycadaceae), a new species from Queensland together with an extension of range and amended description of *Cycas yorkiana*

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Abstract

Hill, K.D. (National Herbarium of New South Wales, Botanic Gardens Trust Sydney, Mrs Macquaries Road, Sydney, NSW 2000, Australia) 2004. *Cycas candida* (Cycadaceae), a new species from Queensland together with an extension of range and amended description of *Cycas yorkiana*. *Telopea* 10(2): 607–611. *Cycas candida*, a new species of *Cycas* endemic to Queensland is described, and new records are discussed. The new species is illustrated and mapped, and affinities are discussed. Records of *Cycas media* from Cape Melville have been shown to belong to *C. yorkiana*, previously known only from near Moreton telegraph station in northern Cape York. An amended description is presented.

Introduction

Ongoing studies of the genus *Cycas* (Hill 1992, 1994, 1996, 1998) have shown several populations in Queensland of uncertain identity. On closer examination, these proved to be stable and morphologically distinct. These populations are formally validated as a new species here in order to establish nomenclature and to provide conservation authorities with a legitimate name for licensing and management purposes.

Field investigations of a *Cycas* record from Cape Melville previously reported as *Cycas media* (Wannan 926, below) have shown this occurrence to belong to *C. yorkiana*, a species previously known only from a single large population near Moreton telegraph station in northern Cape York. A description amended in accordance with the new determination is presented below.

Cycas candida K.D. Hill, sp. nov.

Inter species australienses combinatione characterum sequentium distinguitur: frondes carinatae virides, pinnae carinatae leviter recurvatae, fructus candidus.

Type: Queensland: Rollingstone, K.D. Hill 5671, L. Stanberg & N. Liu, 15 Oct 2001 (holo NSW; iso BRI, CANB, IBSC, K, NY, PE).

Stems arborescent, 1–3 m tall; base not strongly swollen; bark thick and corky. *Leaves* deep green, semiglossy, 80–145 cm long, moderately keeled (opposing leaflets inserted at 90–130° on rachis), with 180–300 leaflets, with orange tomentum shedding as leaf expands; rachis usually terminated by a spine 3–30 mm long. Petiole 17–40 cm long, glabrous, spinescent for 5–90% of length. Basal leaflets not gradually reducing to spines, 40–140 mm long. *Median leaflets* simple, strongly discolorous, 180–230 mm long, inserted at 55–65° to rachis, decurrent for 2–5 mm, narrowed to 3–4 mm at base, 6–10 mm apart on rachis; section slightly keeled; margins slightly recurved; apex acute, spinescent; midrib flat above, raised below, wide. *Cataphylls* linear, soft pilose or densely floccose, persistent. *Pollen cones* ovoid, orange, 40 cm long, 14 cm diam. *Microsporophyll lamina* firm, not dorsiventrally thickened, 43 mm long,

14 mm wide; fertile zone 31 mm long, sterile apex 12 mm long, level; apical spine prominent, sharply upturned, 8 mm long. *Seed cones* open at pollination, open as seed set. Megasporophylls 22–32 cm long, grey-tomentose or brown-tomentose, tomentum shedding; ovules 2–6, glabrous; lamina lanceolate, 60–90 mm long, 24–35 mm wide, regularly dentate, with 36–44 pungent lateral spines 1–3 mm long, 1–2 mm wide; apical spine distinct from lateral spines, 15–29 mm long, 3–4 mm wide at base. *Seeds* flattened-ovoid, 36–39 mm long, 29–33 mm wide; sarcotesta orange-brown, strongly pruinose, 3–5 mm thick; fibrous layer absent; sclerotesta smooth; spongy endocarp absent. Fig. 1.

Etymology: From the Greek *candida*, white, in reference to the white seeds.

Historical notes: Recognised as a distinct species only in 2001.

Distinguishing features: Distinguished from other Australian species by the openly keeled leaves with thick, mid to dark green, moderately broad, moderately keeled leaflets with recurved margins, the soft cataphylls with thick orange tomentum, and the waxy, white seeds. Although superficially resembling *C. media* at first sight, the soft floccose cataphylls, the narrow, keeled leaflets with recurved margins and the white ovules and seeds indicate that this species is more allied with *C. cairnsiana* and belongs in that group (subsection *Cairnsianosae*, Hill 1998). Within the subsection, *C. candida* is one of a small group of species with similar cataphylls and keeled but often green leaves that also includes *C. ophiolitica* and *C. megacarpa*. The latter has been previously placed with *C. media* in series *Endemicae* (Hill 1998) on the basis of green leaves and broad flat leaflets.

Distribution and habitat: Known from the Rollingstone district north of Townsville, and a few kilometres north and south of there. This species is locally abundant in grassy woodland or grassland with scattered trees on skeletal gritty sandy soils on steep granite boulder slopes.

Conservation status: The range of this species is small, but a substantial part of the population is conserved in the Mount Spec National Park. Although conserved, the range of this species is limited and the habitat may potentially be impacted by too frequent wildfires with the potential to disrupt reproduction. 1994 IUCN Red List of Threatened Plants category LR cd. ROTAP category 2RC- (Briggs & Leigh 1996).

Selected specimens (from 12 examined): Queensland: base of Paluma Range, on Paluma road, Hill 4826, 15 Oct 1996 (NSW); Rollingstone, Hill 4827; 15 Oct 1996 (NSW); 40 km S of Ingham, *Maconochie* 2733, 24 Jun 1981 (DNA, NSW, BRI); Rollingstone, *Maconochie* 2735, 24 Jun 1981 (DNA, NSW, BRI, K).

Amended description and conservation status of *Cycas yorkiana*

Cycas yorkiana K.D. Hill, Telopea 7: 18 (1996).

Type: Queensland: 20.5 km N of Wenlock River crossing on Bamaga road, K.D. Hill 4711 & L. Stanberg, 11 Jul 1994 (holo NSW; iso BRI, CANB, DNA, K, L, MEL, NY).

Stem to 1.5 m tall, rarely to 3.0 m, 14–20 cm diam. *Leaves* 90–140 cm long, openly keeled in section (opposing leaflet inserted at 150–180° on rachis), with 160–220 leaflet, terminated by a spine 5–20 mm long; petiole loosely orange-brown-woolly or floccose, 15–30 cm long. *Median leaflets* at 60–75° to rachis, 140–200 mm long, 5.5–7.5 mm wide, glabrous or loosely orange-woolly, glossy mid-green, usually falcate, keeled in section with recurved margins, decurrent for 3.0–5.0 mm, narrowed to 4.0–5.0 mm at base (55–80% of maximum width), spaced at 9–11 mm on rachis, apex attenuate; midrib slightly raised above, prominent below. New growth densely woolly with orange-brown trichomes. *Cataphylls* densely orange-brown-woolly or floccose. *Pollen cones* not

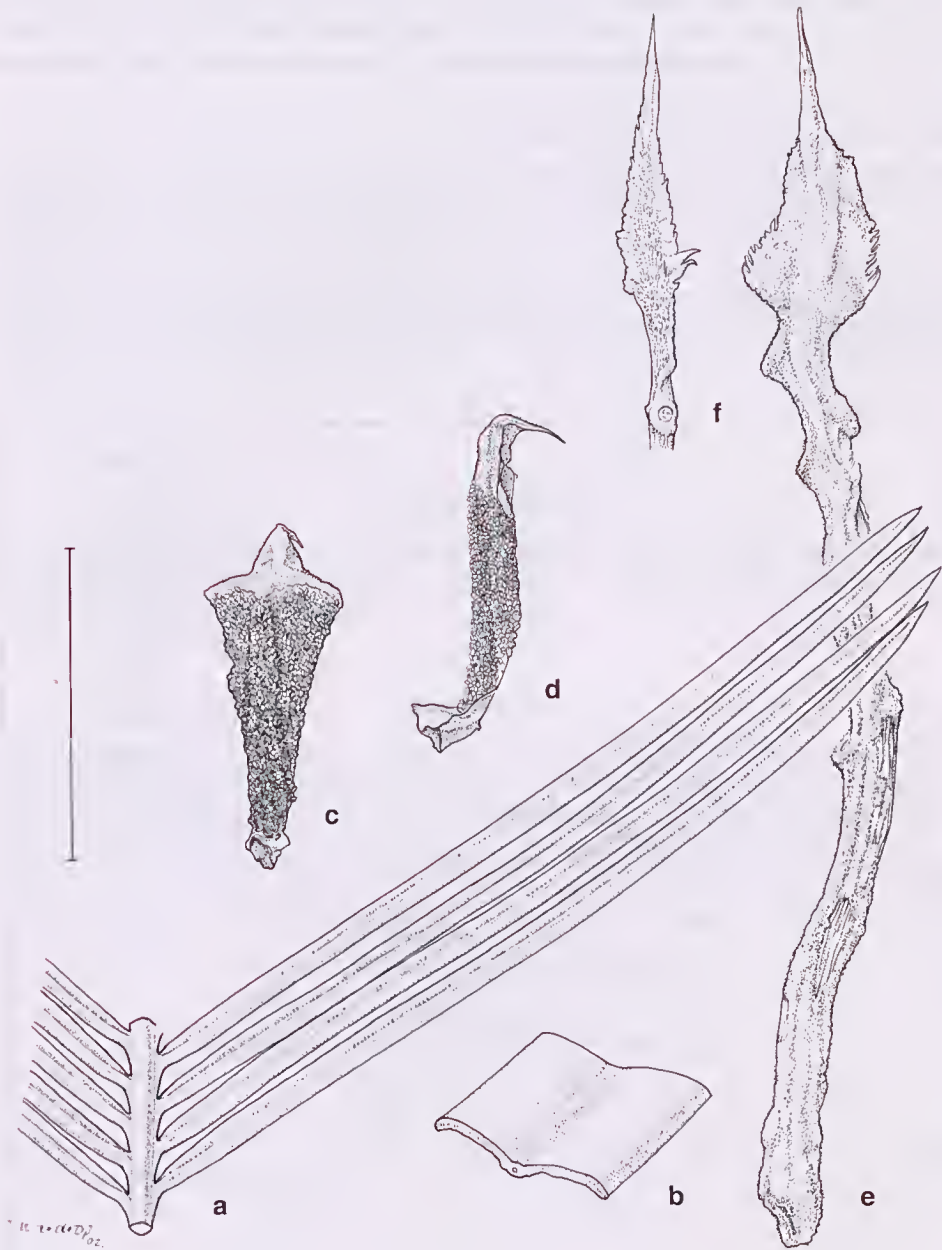


Fig. 1. *Cycas candida*. a, part of leaf; b, section of leaflet; c, d, microsporophyll; e, megasporophyll with stipe; f, tip of megasporophyll (a & b from Hill 5671, c & d from Hill 5674, e from Hill 5672, f from Hill 4827). Scale bar: a = 6 cm; b = 1 cm; c, d = 4 cm; e, f = 6.6 cm.

seen. Microsporophyll lamina c. 35 mm long, c. 12 mm wide, apical spine c. 6 mm long. Megasporephylls 20–32 cm long, grey- and orange-tomentose, with 2–6 ovules, sterile apex 60–100 mm long, 16–32 mm wide, narrowly triangular, regularly dentate, with 24–32 lateral teeth, apical spine 11–18 mm long, lateral teeth 3–6 mm long. Seeds flattened-ovoid, green becoming orange, not pruinose, 28–37 mm long, 26–32 mm diam.; sarcotesta 2–3 mm thick.

Illustration: Telopea 7: 19 Fig. 8 (1996).

Notes: *Cycas yorkiana* is distinguished from other Australian species by the bright green, keeled leaves with keeled and usually falcate leaflets, the short, soft cataphylls, the thick crown of orange wool around the cataphylls and leaf bases, and the absence of pruinosity in leaves and seeds. The closely allied *C. badensis* differs in having a smaller megasporephyll apex with fewer and shorter lateral spines and a shorter terminal spine, somewhat less orange wool in the crown, and leaflet that are usually

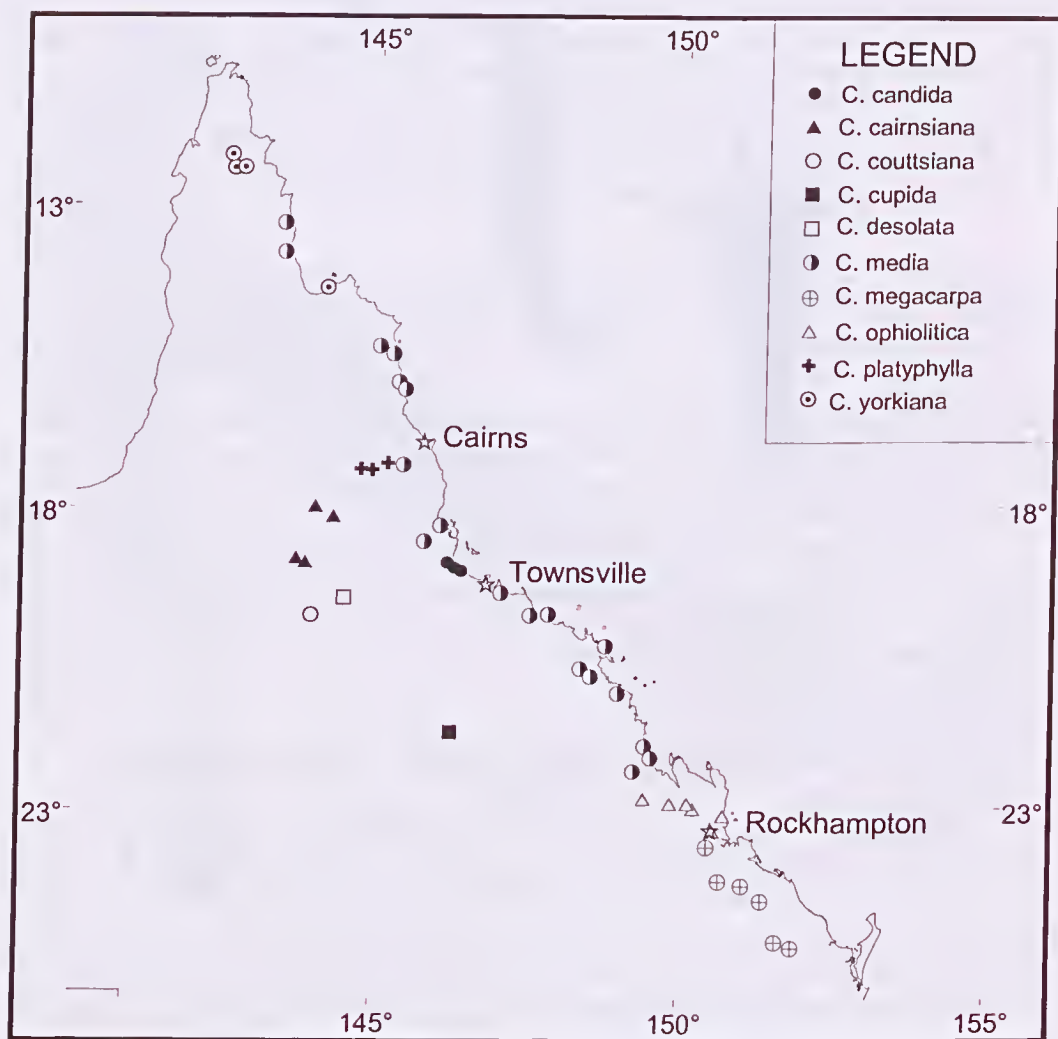


Fig. 2. Distribution of *Cycas* species in north-east Queensland: *Cycas candida*, *C. media*, *C. platyphylla*, *C. cairnsiana*, *C. couttsiana*, *C. desolata*, *C. cupida*, *C. yorkiana*.

straight rather than falcate. The orange wool around the cataphylls readily distinguishes this species in Cape York Peninsula, but also occurs in a number of other species such as *C. cairnsiana* and *C. ophiolitica* further south in Queensland, *C. maconochiei* in the Northern Territory and *C. lane-poolei* in Western Australia. These taxa, however, lack the combination of characters listed above.

Conservation status: the newly identified occurrence and consequent range extension necessitates a review of conservation status from the previous 2R- Briggs and Leigh code. The second occurrence is also conserved within the Cape Melville National Park, and this species must now be regarded as not at risk (IUCN 1994 code Low Risk Least Concern).

Selected specimens: Queensland: Cook: 31 km N of Wenlock River crossing on Bamaga road, *K.D. Hill 4710 & L. Stanberg*, 11 Jul 1994 (NSW); 3.8 km N of Moreton telegraph station, *Hill 1779*, 22 July 1986 (NSW); 12 km N of Morton Telegraph station, *Maconochie 2692, 2693*, 16 Jun 1981 (DNA); 5.7 km N of Wenlock River on Peninsula Development Road, *Clarkson 5651*, 3 Nov 1984 (BRI, DNA); Rokeby, 45 miles [c. 72 km] NW of Coen, *Gordon s.n.*, Oct 1966 (BRI); Bathurst Bay, *Wannan 926*, 20 Jul 1998 (BRI).

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